

Date: Sat, 4 Jun 94 04:30:26 PDT
From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>
Errors-To: Ham-Homebrew-Errors@UCSD.Edu
Reply-To: Ham-Homebrew@UCSD.Edu
Precedence: Bulk
Subject: Ham-Homebrew Digest V94 #150
To: Ham-Homebrew

Ham-Homebrew Digest Sat, 4 Jun 94 Volume 94 : Issue 150

Today's Topics:

 Best freq for 6M AM simplex? (3 msgs)
 CALL FOR VOTES - sci.electronics.cad, sci.electronics.repair
 Cheap 6M FM?
 Getting a VFO on-frequency (3 msgs)
 MUX DISPLAY
 Narrowband Network Analyser
Periodic Announcement - ARRL Email Information Server (info@arrl.org)
 Schematic for WEFAX?
 SSB Filters

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 4 Jun 94 01:42:48 GMT
From: agate!howland.reston.ans.net!usc!sdd.hp.com!col.hp.com!news.dtc.hp.com!
hplextra!opus!walker@uchvax.berkeley.edu
Subject: Best freq for 6M AM simplex?
To: ham-homebrew@ucsd.edu

In rec.radio.amateur.homebrew, zardoz@ornews.intel.com (Jim Garver) writes:

> >trouble finding out what freq I should use. The HT's are crystal
> >controlled, so I'd like to get the freq right on the first try.
> >What should I use for AM simplex? I'd like to stay far away from
> >the calling freqs, DX, and FM. Anyone have any suggestions?

Radio shack walky-talkies are FM not AM.

--
Rick

Date: Fri, 3 Jun 1994 17:28:02 CDT
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!wupost!psuvax1!ukma!news.cuny.edu!
ndsuvml!ud167958@network.ucsd.edu
Subject: Best freq for 6M AM simplex?
To: ham-homebrew@ucsd.edu

I'm working on a project with another ham to convert some radio shack toy walky-talkies (49 MHz) to 6M. Having never worked 6M before (and I don't know anyone in the area that has), I'm having trouble finding out what freq I should use. The HT's are crystal controlled, so I'd like to get the freq right on the first try. What should I use for AM simplex? I'd like to stay far away from the calling freqs, DX, and FM. Anyone have any suggestions?

Thanks in advance.

John Nordlie	NØRNB
University of North Dakota	Space Studies Department
UD167958@vm1.nodak.edu	"Born to program"

Date: 3 Jun 1994 16:27:35 -0700
From: ihnp4.ucsd.edu!swrinde!emory!sol.ctr.columbia.edu!news.kei.com!
ssd.intel.com!chnews!ornews.intel.com!ornews.intel.com!not-for-
mail@network.ucsd.edu
Subject: Best freq for 6M AM simplex?
To: ham-homebrew@ucsd.edu

In article <94154.172802UD167958@NDSUVM1.BITNET> John Nordlie
<UD167958@NDSUVM1.BITNET> writes:
>I'm working on a project with another ham to convert some radio
>shack toy walky-talkies (49 MHz) to 6M. Having never worked 6M
>before (and I don't know anyone in the area that has), I'm having
>trouble finding out what freq I should use. The HT's are crystal
>controlled, so I'd like to get the freq right on the first try.
>What should I use for AM simplex? I'd like to stay far away from
>the calling freqs, DX, and FM. Anyone have any suggestions?

The 6 meter AM calling freq. is 50.4 Mhz. Try it, you might meet somebody there. Chances of winning a lottery are somewhat better.

--

zardo@ornews.intel.com WA7LDV

Date: 3 Jun 1994 08:09:26 GMT
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!overload.lbl.gov!lll-winken.llnl.gov!
fastrac.llnl.gov!usenet.ee.pdx.edu!news.reed.edu!gaia.ucs.orst.edu!
news.csos.orst.edu!ab@network.ucsd.edu
Subject: CALL FOR VOTES - sci.electronics.cad, sci.electronics.repair
To: ham-homebrew@ucsd.edu

FIRST CALL FOR VOTES (of 2)
unmoderated group sci.electronics.cad
unmoderated group sci.electronics.repair

Newsgroups lines:

sci.electronics.cad Schematic drafting, printed circuit layout, simulation.
sci.electronics.repair Fixing electronic equipment.

Votes must be received by 29:59:59 UTC, 21 June 1994.

This vote is being conducted by a neutral third party. For voting questions only, contact the votetaker, Brennan T. Price <gt0670e@prism.gatech.edu>. For questions about the proposed groups, contact Mark Zenier <mzenier@netcom.com>.

CHARTERS

SCI.ELECTRONICS.CAD

sci.electronics.cad is an unmoderated group for the discussion of Computer Aided Design software (and systems) for use in designing electronic circuits and assemblies. Topics can include Schematic "Capture" software, Printed Circuit Board layout software, introductory and educational use of circuit simulation software such as Spice, obtaining simulation descriptions (Spice models) for electronic components, and any other computer software that relates to designing electronic circuits at the printed circuit board level.

SCI.ELECTRONICS.REPAIR

sci.electronics.repair is an unmoderated group for the discussion

of repairing electronic equipment. Topics to include: Requests for assistance, Where to obtain servicing information and parts, Techniques for diagnosis and repair, and Anecdotes about success, failures and problems with equipment manufacturers.

HOW TO VOTE

Erase everything above the top "--" line and erase everything below the bottom "--" line. Do not erase anything between these lines and do not change the group names.

Give your name on the line that asks for it. For each group, place a YES or NO in the brackets next to it to vote for or against it. If you don't want to vote on a particular group, just leave the space blank. Don't worry about spacing of the columns or any quote characters (">") that your reply inserts.

Then mail the ballot to: gt0670e@prism.gatech.edu
Just Replying to this message should work.

-- Don't Delete Anything Between These Lines --
sci.electronics.* Ballot <SE-0001> (Don't remove this marker)

Give your real name here:
If you do not give a real name your vote may be rejected.

[Your Vote] Group

[] sci.electronics.cad
[] sci.electronics.repair

-- Don't Delete Anything Between These Lines --

Anything else may be rejected by the automatic vote counting program. The votetaker will respond to your received ballots with a personal acknowledgment by mail - if you do not receive one within several days, try again. It's your responsibility to make sure your vote is registered correctly.

Only one vote per person, no more than one vote per account. Addresses and votes of all voters will be published in the final voting results list.

--Brennan T. Price, UVV
Running UseVote 3.0

Date: Fri, 3 Jun 1994 13:34:29 GMT
From: ihnp4.ucsd.edu!usc!elroy.jpl.nasa.gov!lll-winken.llnl.gov!overload.lbl.gov!

agate!library.ucla.edu!csulb.edu!csus.edu!netcom.com!kludge@network.ucsd.edu
Subject: Cheap 6M FM?
To: ham-homebrew@ucsd.edu

In article <2sm5oa\$g5j@abyss.West.Sun.COM> myers@spot.West.Sun.COM writes:

>In article 2@cs.cmu.edu, tew+@cs.cmu.edu (Thomas Warfel) writes:

>>Radio Shack sells OEM'ed Maxon 49MHz FM 5 channel (15 kHz spacing)

>>walkie-talkies for around \$50. Has anyone successfully retuned one

>>of these to work 6 meter duplex (either 500KHz or 1MHz split)?

>

>Not likely. This HT, a nicely done piece of work at \$40, uses a cordless

>phone PLL chip which doesn't appear to lend itself well to 6m operation.

>

>The less expensive xtal controlled HT, however, is easily modified for

>6m, so I'm told.

Agreed. I have modified the little xtal controlled beast and it works nicely. Even got a couple of states with it when 6M was really open. I think the HT might be modifyable, though, but it's going to take more work.

If you want more power, look into boatanchors. There are a lot of military field radios that will cover 6M and which can be had for a song. Fair Radio has a nice assortment, and I picked up a PRC-10 for \$20 at a hamfest myself.

--scott

--

"C'est un Nagra. C'est suisse, et tres, tres precis."

Date: 3 Jun 1994 17:40:15 GMT

From: elroy.jpl.nasa.gov!usc!howland.reston.ans.net!europa.eng.gtefsd.com!

newsxfer.itd.umich.edu!nntp.cs.ubc.ca!psgrain!news.tek.com!tekgp4.cse.tek.com!

royle@ames.arpa

Subject: Getting a VFO on-frequency

To: ham-homebrew@ucsd.edu

From: drew@trl.oz.au (Drew Diamond)

>And (this may start an argument) leave out that useless little diode at the
>gate- it does no good that I can see, and sometimes causes a deterioration
>in output and stability.

Sorry, Drew, you're right -- I've gotta argue with your statement. The diode has a very noticeable and measurable beneficial effect on stability. Both Wes, W7ZOI, and I have confirmed this. The diode acts as a clamp, never

conducting more than very, very slightly. It prevents the FET gate-source diode from conducting, which would load the tank circuit, reducing its Q and increasing drift. In my experiments, a schottky or germanium diode does degrade the stability, for reasons I've never investigated. Perhaps it's because of the larger reverse leakage currents of these types. But a 1N914-type silicon diode does effect a very apparent improvement in stabililty.

Roy Lewallen, W7EL
roy.lewallen@tek.com

Date: 3 Jun 94 18:37:13 GMT
From: elroy.jpl.nasa.gov!swrinde!howland.reston.ans.net!vixen.cso.uiuc.edu!aries!
hawley@ames.arpa
Subject: Getting a VFO on-frequency
To: ham-homebrew@ucsd.edu

royle@tek4.cse.tek.com (Roy W Lewallen) writes:

>From: drew@trl.oz.au (Drew Diamond)

>>And (this may start an argument) leave out that useless little diode at the
>>gate- it does no good that I can see, and sometimes causes a deterioration
>>in output and stability.

>Sorry, Drew, you're right -- I've gotta argue with your statement. The diode
>has a very noticeable and measurable beneficial effect on stability. Both
>Wes, W7ZOI, and I have confirmed this. The diode acts as a clamp, never
>conducting more than very, very slightly. It prevents the FET gate-source
>diode from conducting, which would load the tank circuit, reducing its Q
>and increasing drift. In my experiments, a schottky or germanium diode does
>degrade the stability, for reasons I've never investigated. Perhaps it's
>because of the larger reverse leakage currents of these types. But a
>1N914-type silicon diode does effect a very apparent improvement in
>stabililty.

June '94 QST has an article (part 2) on receiver design which if I read
the thread correctly, concludes that it would be good to leave this diode
out...that it contributes to phase noise. Just wondering if this is
relevant to your discussion.

Chuck Hawley.....KE9UW.....Urbana, Illinois
hawley@aries.scs.uiuc.edu
School of Chemical Sciences, Electronic Services
University of Illinois, Urbana-Champaign

Date: 4 Jun 1994 00:01:10 GMT
From: elroy.jpl.nasa.gov!swrinde!howland.reston.ans.net!ee.und.ac.za!
nnntp.und.ac.za!psgrain!news.tek.com!tek4.cse.tek.com!royle@ames.arpa
Subject: Getting a VFO on-frequency
To: ham-homebrew@ucsd.edu

hawley@aries.scs.uiuc.edu (Chuck Hawley):

>June '94 QST has an article (part 2) on receiver design which if I read
>the thread correctly, concludes that it would be good to leave this diode
>[from the gate of an oscillator FET to ground] out...that it contributes to
>phase noise.

My reading of the discussion in the article is:

- The added diode can increase phase noise, but "merely including a gate-clamping diode does not guarantee higher phase noise".
- Added noise occurs only under some conditions of feedback.

A footnote (number 12) credited to the editor (presumably Dave Newkirk), states that

- The diode does improve frequency stability. Equal stability can be achieved by applying the correct amount of source bias, instead. However, determining the proper amount of source bias isn't as simple as adding the diode.

Rhode uses a schottky diode elsewhere in his circuit. It may have been "obvious" that a schottky diode would be better than silicon as a gate clamping diode, so this may have been what Rhode used in his experiments. I don't know how the two might differ in their noise-adding properties.

I don't believe that phase noise is an important consideration in a VFO unless the oscillator is used as a reference in a phase-locked loop with high multiplying factor, or the oscillator is multiplied to a much higher frequency. Perhaps a professional receiver designer could comment on this.

Roy Lewallen, W7EL
roy.lewallen@tek.com

Date: 3 Jun 1994 11:38:07 -0500
From: lll-winken.llnl.gov!overload.lbl.gov!agate!howland.reston.ans.net!
cs.utexas.edu!not-for-mail@ames.arpa
Subject: MUX DISPLAY

To: ham-homebrew@ucsd.edu

I am looking for a source for the DL-340M four-segment display used in the frequency counter featured in the latest ARRL Handbook.

Carl Speck cspeck@mail.msen.com

Date: 3 Jun 1994 20:30:12 GMT
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!wupost!waikato!auckland.ac.nz!status.gen.nz!iconz.co.nz!russells@network.ucsd.edu
Subject: Narrowband Network Analyser
To: ham-homebrew@ucsd.edu

Date: Thu, 2 Jun 1994 21:00:06 MDT
From: ihnp4.ucsd.edu!library.ucla.edu!psgrain!nntp.cs.ubc.ca!alberta!ve6mgs!rec-radio-info@network.ucsd.edu
Subject: Periodic Announcement - ARRL Email Information Server (info@arrl.org)
To: ham-homebrew@ucsd.edu

Periodic Announcement - ARRL Email Information Server (info@arrl.org)

The services that the ARRL provides via the internet include the Email Information Server and the Technical Information Service. The Information Server is an automated mail server that gives you access to many of information files relating to various facets of Amateur Radio. You can retrieve any or all of these files by sending an email message to info@arrl.org here at ARRL HQ. Each file you request is then mailed to you automatically.

To use it, mail messages to:

info@arrl.org

Each line of the message body should contain a command as shown below. The subject of your message is not processed and may be omitted. You may place as many commands in a message as you want. The files you request will be sent to you in separate messages. Only ASCII text files are supported.

Valid INFO commands:

reply <address> (may be needed - see below for explanation)

help
index
send FILENAME (example: send prospect.txt)
quit

In the above message example, "help" retrieves a brief set of instructions for info, "index" retrieves a list of available files and "send prospect.txt" retrieves a text file containing information on becoming a radio amateur.

Note to users with FTP capability: All of these files are also available by anonymous ftp to oak.oakland.edu in the pub/hamradio/arrl/infoserver area. Retrieve the file index.txt in the /league sub-directory for a complete listing of available files.

If you want to retrieve several text files with one message, use a separate line for each "send filename" request.

Your From: field or Reply-to: field in your header should contain a valid Internet address, including full domain name. If your From: field does not contain a valid Internet address, the answer will not reach you. If this is the case, then use the reply command as shown above. When needed, this command should always be the first command in your message.

IMPORTANT: Please use the quit command in your message. This will prevent processing errors from message signatures.

PLEASE NOTE!: This is an automated system not capable of handling written requests. Any questions on the info-server or the content of any of its files should be directed to mtracy@arrl.org.

ALSO NOTE!: Do *NOT* reply to messages sent from info@arrl.org - the reply address is redirected to keep bounced messages from endlessly looping. Write a new message to info@arrl.org instead.

The Technical Information Service gives League members on the internet better access to the knowledgeable technical staff here at ARRL HQ. Questions relating to Amateur Radio and related technical topics are welcome. To use this service, send a normal e-mail message to tis@arrl.org with your question spelled out in plain english. For best service, be as specific as possible and keep your line length in messages to a maximum of 80 characters. Due to personnel limitations, priority will be given to questions from League members.

Best Regards,

Michael Tracy, KC1SX, ARRL Technical Information Services Coordinator
(e-mail mtracy@arrl.org)

Sample of files available from INFO: (There are lots more!)

Note - If you are not yet an Amateur Radio operator retrieve the
file prospect (send prospect) for information on how to easily get
started in this fun hobby.

FILENAME	SIZE	DATE	DESCRIPTION
PROSPECT.TXT	2k	930514	How to get your Amateur Radio license
EXAMS.TXT	52k	930629	Current exam schedule info - updated bi-weekly
EXAMINFO.TXT	9k	921020	Examinations - what to bring - requirements
USERS.TXT	6k	930119	List of HQ Email addresses
ARRLCAT.TXT	39k	930709	Catalog of ARRL Publications - commercial content
JOIN.TXT	2k	930621	How become an ARRL member
SERVICES.TXT	5k	930621	A condensed list of ARRL membership services
TOUR.TXT	28k	930621	An electronic tour of ARRL Headquarters
DIR.HQ	5k	930310	Visiting ARRL HQ - directions and tour information
HFBANDS	7k	921203	Breakdown of users of HF spectrum
Q-SIGS	1k	921203	ARRL list of Amateur Radio Q-signals
W1AW.SKD	2k	930120	W1AW schedule of transmissions and operation
PRODREV1.TXT	12k	930227	Which rig is best? Part 1 - QST Lab Notes
PRODREV2.TXT	22k	930227	Which rig is best? Part 2 - QST Lab Notes
!LIST.TXT	6k	931120	QST Bibliographies List
RFIGN.TXT	37k	930120	How to solve an EMI/RFI problem - QST Lab Notes
RFISOURC.TXT	13k	930607	Where to buy filters - EMI-proof telephones etc.
ADDRESS.TXT	16k	930318	Lots and lots of ham/electronic company addresses
KITS.TXT	6k	930430	List of companies that sell kits
BBS.TXT	12k	930601	List of ham-radio land-line bulletin boards
FAQ1.TXT	25k	930707	Introduction to the FAQ and Amateur Radio
FAQ2.TXT	45k	930707	Amateur Radio Orgs, Services and Info Sources
FAQ3.TXT	32k	930707	Amateur Radio Advanced and Technical Questions

American Radio Relay League, Inc. Tel: 1-203-666-1541
225 Main Street Fax: 1-203-665-7531
Newington, CT 06111 Email: mtracy@arrl.org

Date: Fri, 3 Jun 1994 19:21:39 GMT
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!
vixen.cso.uiuc.edu!uchinews!ellis!paweiss@network.ucsd.edu

Subject: Schematic for WEFAX?
To: ham-homebrew@ucsd.edu

Hi, new here; am I in the right place?

I'm looking for a schematic for a WEFAX decoder, like the ones they sell for ~\$75, going from the headphone jack of a shortwave recv. to the serial port of an IBM compatable. I got a bad copy of one in Spain, and the communication problems kept much information from being passed (for the longest time, I thought they were giving me the secret diagram, turned out to be a circuit diagram :)), and would like to try again.

Thanks,

--

Philip Weiss paweiss@midway.uchicago.edu

Date: 3 Jun 1994 16:19:35 GMT
From: lll-winken.llnl.gov!overload.lbl.gov!dog.ee.lbl.gov!agate!
howland.reston.ans.net!swrinde!sdd.hp.com!hpscit.sc.hp.com!rkarlqu@ames.arpa
Subject: SSB Filters
To: ham-homebrew@ucsd.edu

In article <CqoBJE.K96@hpbqmoea.sqf.hp.com>,
David Stockton <dstock@hpbqmoca.sqf.hp.com> wrote:

>
> It depends a lot on the frequency, the circuit, and production
>tolerances. With care a 200 ppm (parts per million) tuning range can be
>reasonably reliably achieved for a favourable frequency and circuit.
>
> beware that overtone crystals are far far harder to pull. In general
>terms, if you have two crystals at the same frequency, the overtone one
>will give a swing reduced by a factor roughly equal to the square of its
>overtone number.
>
> Beware of attempts to pull an oscillator too far, you'll suffer from
>temperature dependant failure to start, etc etc.
>
> David GM4ZNX

Actually, with the right circuit, you can reliably pull a fundamental crystal 1000 PPM (i.e. +/-500 PPM). If necessary you can increase that to 2000, 3000 or even 4000 PPM with some degradation of phase noise and temperature stability. Similarly, 3rd overtone crystals can be reliably pulled 100 PPM and 5th overtone crystals can be reliably pulled 40 PPM.

How do you do this? Build an LC Colpitts oscillator at the frequency of your crystal (get it within a few %). Now, insert the following circuit in series with the emitter of the transistor: the crystal in series with the tuning diode in series with an inductor which resonates with the diode at the xtal frequency when in the middle of the diode's tuning range. Finally, install a shunt inductor directly across the crystal such that it resonates out the C-zero of the crystal at the crystal frequency. C-zero is typically 5 pF. Make sure this inductor has a high enough SRF (i.e. >> xtal frequency). Note that the finished oscillator has 3 inductors.

If you have starting problems, you might have a VHF parasitic oscillation. The old trick with a ferrite bead on the base or collector will fix this. A 2N5179 is a good transistor to use.

Rick Karlquist N6RK
rkarlqu@scd.hp.com

End of Ham-Homebrew Digest V94 #150
